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News Letter

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MONTANA AERONAUTICS COMMISSION
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Member of
National Association of State Aviation Officials

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April, 1956

MPA ANNUAL MEETING

The annual meeting of the Montana Pilots Association was held in Havre on April 28th and 29th.

There were 260 pilots and pilotesses registered for this annual event.

The usual instrument weather prevailed with various original means of transportation being used including taxiing in on the highway by a well-known safety agent.

The guest speaker at the banquet was Les Schroeder former director of aeronautics of Minnesota who flew in with a delegation of Minnesota pilots.

The Havre Pilots were hosts to this outstanding MPA annual meeting. A well planned and enjoyable program included a spiked tea for the ladies and a brief but adequate business session.

The best dinner you ever saw was served at the Country Club and the whole MPA program, which included a dance and Sunday breakfast, reflected the careful planning and work of the pilots and their wives on the host committees.

New officers elected were Jim Shennum of Wolf Point, President and Harold De Silva of Plentywood Vice President. Jennie Wilson of Helena was appointed recording secretary.

The outstanding pilot of the year elected to receive the MPA plaque was John Doster our Southern Montana Safety Agent.

Mr. MacIntyre accepted the charter for the new Glasgow hangar which now has seventy members.

The annual meeting next year will be held in Wolf Point.

AVIATION AND TAXES

An Address By

LES SCHROEDER

At The Annual Meeting

MONTANA PILOTS ASSOCIATION

Havre, Montana, April 27-28, 1956

Most of us here today experienced the glowing promises which were made for civil aviation in the closing days of World War II and the coming of the Air Age. Many of us as self acknowledged experts in our particular aviation activities suffered with mixed emotions the dark years that followed and particularly the years of 1947 through 1949 when it appeared that all of civil aviation was headed for bankruptcy.

In 1948 the situation had become so serious that a major effort was made to establish a national aviation policy. In that year the President's Air Policy Commission said:

> 'The airlines, the most important element of civil aviation, are passing through one of the most serious crises of their history. The domestic trunk lines of the country suffered an operating loss of approximately $22,000,000 in the fiscal year ending June 30, 1947.
>
> "The chief objection to these local service air lines is their potentially high cost to the Federal Government. . . We recommend that the experimental period for existing feeder lines remain for the present at 3 years, unless it becomes evident that this period can be extended without burdensome cost in mail pay. Then, and only in that case, it should be extended . . . . .
>
> "The taxpayer has contributed generously in the past to personal aviation. . . . . . Airport operators in all parts of the country were able to—refurnish and re-equip their buildings, improve their buildings and generally put themselves on a businesslike basis. . . . The great mass of pilots will decide the near future of personal aviation. If enough of them do not continue flying to support the personal plane industry, their neglect should be an unmistakable sign. . . . . ."

Today, the total industry picture is vastly different. The airplane has done more than win public acceptance. It is now firmly established as an absolute essential as a vehicle of transportation and a tool of business, industry and agriculture. The immediate and major problem of business and industry, and of all levels of government, is to increase the capacities, improve the capabilities, and provide the facilities of and for the aircraft of all types. Our only purpose in looking back at the dark years is to recognize the hiatus which slowed the process of intergarting the problems of the airplane into governmental machinery, particularly at the state and local levels. Even at the national level there has been a costly delay in the planning and building of facilities.

With very few exceptions, the price of uncertainty and skepticism has been the obsolesence of or complete absence of needed facilities of all types in all parts of our country. More serious is the continued absence of a reasonably unified plan for the funding of the costs of providing new facilities and bringing existing facilities up to acceptable standards. We need many more improved airports. **We need hard surfaced runways and lights on many existing sod runway fields. We need more taxi-ways, ramps and longer runways with adequate clear zones at most of our major terminals. We are short of facilities on the airports.** In spite of the many new passenger terminals which have been constructed in recent years, many are still inadequate. **We need hangars and shops and other service structures on virtually every airport, large and small. We need improved communications at these airports and we need electronic aids.**

In the past, it has been the tendency for all levels of government to dismiss the needs of personal or general aviation as being of no particular economic significance. The urgent needs of the military and the scheduled air carriers commanded top priority in the planning for the allocation of federal grant-in-aid for airports. The statistical studies of the CAA reported a declining light aircraft population and a decrease in the issuance of airmen's certificates. This trend has changed. The airframe manufactures have scheduled something over 6,000 light aircraft units for production in 1956, the largest for many years. None of these aircraft are regarded as "trainers" in the old sense. They are vehicles having the same needs for facilities as any other aircraft, and what is more important, the present day owner demands transportation utility. His need for the public airport is identical with the need of the owner of a motor vehicle for the public highway. But his misfortune has been that in many states the governmental machinery for providing for his needs is the same as it was for providing roads at the turn of the century.

To understand why state and local governments have been slow to approach the problem of airports and facilities for the general aircraft use one must first have some appreciation of the revenue sources of the several levels of government. A part of the historic philosophy of airport development has been that if any city felt that it needed an airport, it should be willing to levy taxes to provide the funds. The principle source of revenue of local government is taxes on property and the city fathers do not have absolute freedom to levy, since most states limit the debt contracting powers of cities by classes to a stipulated percentage of the assessed valuation. It is the rare city that does not have trouble accomodating its essential public services within its taxing capabilities. The airport requirements must either be forgotten or come last unless aid is available from some other source.

The states have a similar problem. Since local government gets its revenues largely from property taxes only a limited portion of the money needed by the state can come from this source. So in some 29 states sales taxes of one type or another provide the basic revenue needed, and if appreciable aid is to be given to aviation's needs, new revenue sources are required. But the state is not confronted with the same limitations imposed on local governments and can develope new tax sources. One of the best examples is to be found out here in the west. It was the state of Oregon which took the lead in establishing a tax on motor vehicle fuels to meet the problem of highway development, and within ten years every state had enacted similar taxes for the same purpose.

The three levels of government each presently spend about $10 billion dollars annually and one of the difficulties encountered in considering aviation's needs is the unavoidable overlapping to some degree which appears both in governmental services and in taxation to pay the costs. **The motor vehicle fuel tax provides a good example. Although the states initiated this tax to meet the problem of improved highways, in 1932 the federal government imposed a 2c per gallon tax as an emergency measure, and we all pay this tax to the federal government on our aviation fuel, though it is in no way related to aviation aids provided by the federal government.**

Although the burden of government is divided about equally between the three levels of government, the historic approach to aviation's needs has been to bye-pass the states. At the time of the Congressional hearings on the then proposed Federal Airport Act in 1945 I testified before the House Committee that the burden of providing the needed facilities was such that all three levels of government must of necessity contribute. The President's Air Policy Commission report of 1948 and other similar studies have insisted that the airport and its facilities was strictly a federal-local community problem. But a number of states have made better progress.

No clearly defined logic supports the federal-local problem theory in the light of experience to date. A good statewide system of airports is of just as much interest to a state as a system of highways. The fact that a propriatory function attaches to the municipal airport does not serve to destroy the need for a statewide system of airports, but it has been one of the barriers to the integration of airport needs into the machinery of government at all levels. One of the early reasons was the belief that an airport was a potential source of revenue for a city and that these revenue potentials were capable of amortizing the cost of the city as well as paying the costs of maintenance and operation. Experience has shown that the fully self-sustaining airport is the exception rather than the rule, and that this situation is not likely to change in the immediate future. One relatively recent and interesting study indicated that in many instances the greater the activity on the airport, the greater the deficit to the city and the higher the unit cost to the individual user.

Fifteen or more years ago, when it was proposed that an answer to the problem of airport needs, in part at least,

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

PURPOSE:—"**To foster aviation as an industry**, as a mode of transportation for persons and property and as an arm of the national defense; to join with the Federal Government and other groups in research, development, and advancement of aviation; to develop uniform aviation laws and regulations; and to otherwise encourage co-operation and mutual aid among the several states."

was user taxes, a great out-cry came fr[illegible] the industry segments that such charges would serve to destory the then infant industry. Certainly that situation, too, has changed. **Today civil aviation in all of its activities is generating very substantial tax revenues. Unfortunately a large portion of these tax revenues are diverted to other purposes in many of the states,** or refunded, or if subject to refund, just unclaimed.

Recognition of the changing financial status of the civil aviation industry has come in recent years with proposals made by task force study groups and the CAA that user taxes be imposed at the federal level to pay in part at least the cost of maintaining the federal airways. **It is virtually certain that some form of user tax for that purpose will ultimately be imposed by the federal government. This poses for the states the interesting question of whether they wish to abandon this field of taxation and permit it to be preempted by the federal government. It further raises the question for general aviation of what source of funds will remain to develope needed airport facilities, and whether they would prefer to (1) pay no taxes at all and have no improvements, (2) pay user taxes at the state level dedicated to airport improvements, or (3) pay user taxes solely at the federal level.**

The effect of user taxes at the state level is no longer speculative since there are a number of states which now have ten or more years of experience. Minnesota is the closest at hand for the purposese of this paper. In a period of ten years the experience has been:

> About one hundred airports have been developed or improved with state appropriated aids.
>
> About $2,500,000 in state appropriations have been amortized with interest from the special aviation tax sources.
>
> Fuel tax revenues are running about $200,000 a year and are slowly increasing; aircraft license taxes and other charges bring about another $50,000 annually.
>
> Excepting the major metropolitan area of the Twin Cities, the bonded indebtedness of municipalities for airport purposes is negligable, most cities having been able to finance their airport improvements with currently available funds together with the state and federal aids.
>
> The state has installed its own system of TVOR's —seven such units being in place, and seven more planned.
>
> The airline flight property tax brings another $115,000 annually

The Minnesota method involves legislatively dedicated user taxes as a means of apportioning the burden. With one or two exceptions, the city was required to pay the total cost of acquiring the land area, since the land was regarded as a non-depreciable asset acquired by the city. **The low cost sod landing strips were paid for entirely with state funds, the average cost of construction being about $12,000. Where the city wanted or needed more improvments and no federal funds were available, the city paid one-third and the state 2/3rd's of the cost of improvements. These were projects costing approximately $25,000 for improvements on an average.** In cases where federal funds were available the matching ratio was 1/6 local, 2/6 state, and 3/6 federal. Some work of an emergency nature was paid for entirely by the state.

There are other possible methods but the one great advantage of the Minnesota method was its close resemblance to the method used by the states for highway improvements, providing reasonably good standards and a long background of experience. It should be added that Minnesota issued certificates of indebtedness against its special revenue sources so that the urgent improvements could be accomplished and the debt paid from increased revenues as the flow of traffic increased. In some states user taxes are returned to the city where generated on a percentage basis. The limitations of this method as against state-wide needs and the requirements for major improvements are obvious.

As with the highways, all of the states are now faced with the problem of creating and maintaing a system of facilities which will permit air traffic to flow and make provision for not only the amortization of the original costs, but provide for obsolesence, replacement, improvement and emergencies. If the problem is left to the individual cities, some will be able to better than others, and some nothing at all. The industry is now capable of paying a reasonable and fair user tax, and generally does not object so long as the amount paid is used for essential requirements and the administration is efficient and honest. If the rate of the tax is unreasonable, administration lax and wasteful, and the costs excessive, which is the great fear that industry has of expanding government services, then opposition will be immediate and violent.

Service facilities on the airport are no less a problem, in their inadequancy or absence, and as with the airport a barrier exists which is holding back needed improvements. In theory, at least, these facilities should be provided with venture capital. Once they are so constructed on public land, for all purposes except taxation they become the property of the municipality, unless the structure happens to be of such a nature that it can be removed, and the lease so provides.

Under the tax laws of many of the states, if a hangar and office lean-to structure is constructed on a municipally owned airport with city funds and all or a portion of it leased to a commercial operator, on a year to year basis the building will either carry no property taxes, or only very limited taxes for that small portion of the structure devoted to an exclusively private use, other than a use which is incidental to the functions and services of an airport. If the same structure is constructed with private funds on land leased from the city on a long term lease, it is subject to both ordinary taxes and special assessments. **Without getting into the technical phases of the laws of taxation it may be stated that the situation is one which needs legislative attention in many states.**

Operators and investment capital alike are not seeking special inducements in the nature of tax benefits to provide the required servi[illegible] structures at airports, but they are confronted with the practical effects of competitive advantages and disadvantages, together with the reluctance of lending agencies to provide funds where tho risk cannot be secured. If these barriers cannot be overcome, then for the most part the service structures on airports must be provided, if at all, with public dollars. In many jurisdictions the tax inequity can be overcome by an understanding of the problem and a careful drawing of the lease agreements. The barrier to the investment of funds will still remain in most instances by reason of the inadequacy of the security.

Civil aviation and particularly general aviation in 1956 is on the upturn. How far it can or will go will depend in a large measure on how much progress can be made in overcoming the lack of facilities and the inadequate facilities. It is still my strong personal believ that the task is one which requires the unified effort of federal, state and local governments. Some hope lies in the knowledge that interim committees of a number of the state legislative bodies have been undertaking studies, but unfortunately these seem to be isolated efforts. Real progress can be made only if the problem is approached jointly by the Council of State Governments, the American Municipal Association, and the related entities of inter-governmental co-operation.

WAL OPERATIONS BACK TO NORMAL

Western Airlines officials described the snap-back of traffic as terrific. On the Minneapolis route, where recovery was expected to be fairly slow because of the season of the year, high load factors were achieved immediately. For example, the first three coach flights went out with a single vacant seat between the three. On other inland routes and on the Pacific coast, both loads and advance bookings are running far above WAL expectations.

The long period of idleness resulted in a surprisingly low personnel loss. Biggest loss was in stewardesses. As the furlough period stretched out, engagements turned into weddings, and WAL is hastening to reactivate stewardess training classes April 18. Pilots and flight engineers returned without exception.

The service division reported a loss of approximately 7%, considered very low in view of the nature of these jobs. The traffic department lost less than a dozen.—Am. Avn. Daily.

HARD AS SPINSTER'S HEART

The increase in stage lengths of air carrier flights has introduced a new problem to pilots, namely, rough landings. Conversely, at the end of short-haul trips pilots almost always make very good landings Why?

The problem seems to lie in the eyes' indisposition to accurate distance and depth perception after relatively long periods of flying at high altitudes. There being nothing outside the cockpit for the pilot's eyes to focus on, his focal distance becomes established at a mere three and a half feet. Therefore, at the end of the trip when the pilot comes in for his landing, this induced muscular lethargy of the eyes produces inaccurate distance and depth perception. The result: a landing you can't brag about.

On short-stage flights where altitudes are relatively low and frequent landings are made, the pilots eyes are constantly exercised by focusing on object first inside then outside the cockpit. The result: good landings, smooth as a . well, really smooth and gentle.

Pilots flying the high-up and fairly long trips recommend the following as a solution to the problem.

On your letdown to the airport and beginning at an altitude of about 1,000 feet, give your eyes some tune-up by looking back and forth from the instruments inside the cockpit to objects on the ground. Then by the time you come in over the threshold, your eyes will have "limbered up" to give you instant and accurate depth and distance perception. The result: continued good landings.

Try it, if you've made some rough landings lately. Remember spilled coffee does not add to the decor of the cabin or the customers.—Flight Safety Foundation.

AGRICULTURAL AIRCRAFT REGISTRATION

All agricultural aircraft equipped for the distribution of chemicals, seeds or bait will currently be covered by an insurance policy, which insures the owner of the aircraft and any other person using or responsible for the use of such aircraft with the consent, express or implied, of such insured, against loss from liability on account of injury to or death of any one person in the amount of at least $25,000.00, and against loss from liability on account of injury to or death of more than one person in the amount of at least $50,000.00, and against loss from liability on account of damage to property of others in the amount of at least $25,000.00; provided, however, that no such insurance coverage shall be required of agricultural aircraft so equipped which are operated in a non-commercial basis and not for hire, in connection with the distribution of chemicals, seeds or bait only upon lands owned or leased by the owner of such agricultural aircraft.

Acceptable evidence of insurance will be a letter from an authorized insurance company giving dates of coverage, the amounts thereof, and listing the aircraft covered and the owner's name, togther with a statement from such insurance company that it will promptly notify the Montana Aeronautics Commission of any change in or cancellation of such insurance policy.

AIRCRAFT SERVICE

The Morrison Flying Service in Helena now has 100 Octane fuel available upon request and stored on the airport.

FOR SALE

Cessna 140, TT 891 hours, 103 hours since overhaul, good condition. Terms Cash $1,800. For further information write J. Carl Linse, Denton, Montana.

Use Feeder Airline Service

Billings, Miles City, Glendive, Sidney, Wolf Point

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News Letter

P. O. Box 1698
Helena, Montana

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MONTHLY REPORT

The following items are taken from the monthly report of the director as submitted to the commission at their regular meeting in Helena on April 11th:

Communications Equipment

Several letters have been received in this office from flight operators and airport representatives throughout the state requesting that they be listed to purchase UNICOM radio equipment. Definite word has not been received from the manufacturer on the civil defense approval of this equipment or from the civil defense agency on the availability of funds. Hugh Potter, director of civil defense for Montana, has advised that he is certain that funds will be available

Missoula Airport Board Meeting

At the request of the Missoula County Airport Board the director and Henry Loble attended a meeting of the board with county commissioners of Missoula County. The meeting was for the purpose of discussing the matter of funds to be received from tht sale of airport property which was formerly Hale Field, a county airport.

The Missoula Airport Board contends that those funds should be put in the account to the credit of the Airport Board and the Missoula county commissioners contends that the funds should be placed in the general fund of the county. It was pointed out by Henry Loble that the airport law of Montana specifically states that all funds from the proceeds of sale of airport property should be placed in the airport fund of the county or city. The Missoula Airport Board expressed their appreciation of the assistance given them by the commission on this matter.

This specific incident in Missoula is quite important to protect city and county airports and a test case would either strengthen the law on this matter or show the need for a stronger law as more and more airports in the state are getting economic pressure as property values increase.

Directors Meeting International Northwest Aviation Council

The director attended a planning meeting for the next annual meeting of the International Northwest Aviation Council which is scheduled to be held in Boise on Sept. 9, 10, and 11th. President Hart discussed the program with the conference members and requested that any suggestions or topics to be placed on the agenda be submitted to the program committee Regional meetings of flying organizations are scheduled to be held during the same dates of the planning conference.

Crop Spraying Regulations

It has been suggested by flight operators that the commission consider passing regulations requiring crop spraying pilots to pay a fee for registration and have certain experience qualifications

It is recommended that the crop spraying regulations for this year remain as they are as it is late in the season to establish additional requirements. It is recommended that any fees or standards established apply to all crop spraying pilots.

Low Frequency Range Stations

A letter was written to Mr. Plett, new regional administrator for the CAA, requesting that the commission be informed of any plans the CAA may have in mind on the discontinuance of the low frequency range stations at Livingston, Whitehall and Drummond. Mr. Plett replied to the letter advising that the CAA planned on the operation of the subject stations during the fiscal year of 1956-1957 and that he would inform us of any change in the operating plans of these facilities.

Forest Service Landing Strip

Otis Crooker operator of the flight strip at Ennis reported to this office that the Forest Service plans on constructing a landing strip two miles east of Ennis due to difficulty in obtaining a release of adjacent property to the existing flight strip. The director called on the property owner who was very emphatic in his opinion that he did not care to authorize the use of his property for the extension of the existing landing strip owned by Crooker.

SPATIAL ORIENTATION

The Pilot did not know:

The most efficient gliding speed for his particular make of aircraft. He would have reached his forced landing field if he had known.

The best flap setting for a short field take-off. He wouldn't have gone through the fence if he had known.

That the inexperienced pilot may suffer complete loss of spatial orientation at night unless properly trained. He wouldn't have lost control of his aircraft if he had known.

A steep bank, coupled with strong back pressure when overshooting a turn into the runway, can cause a "snap roll". He would be alive today if he had known.

DO YOU KNOW YOUR AIRCRAFT? DO YOU KNOW YOUR OWN LIMITATIONS?

AVIATION CALENDAR

If your pilot group and aviation organization is planning an activity we would like to advise the Montana pilots of the date of your program in this Newsletter under the heading of Aviation Events.

AGRICULTURAL AIRCRAFT AND PILOT REGISTRATION

The regulations of the Motana Aeronautics Commission and the laws of Montana require that all agricultural aircraft and pilots engaged in agricultural flying be registered with the office of the Montana Aeronautics Commission for the calendar year. This regulation will be strictly enforced and application forms for registration may be procured from most flight operators and by writing to the office of the commission, P. O. Box 1698, Helena, Montana.

All agricultural pilots and all pilots flying aircraft in Montana are required to be registered currently and annually with the office of the commission. Forms for pilot registration may be procured by writing this office.

N. D. AERONAUTICS COMMISSION PAYS 52 COUNTY TREASURERS $7,497.37

The North Dakota Aeronautics Commission on Nov 28, 1955 mailed checks to 52 County Treasurers for a total disbursement of $7,497.37 which represents the counties' apportionment of the 1954 aircraft registration fees collected in the state as compared with $7,297.73 paid the counties last year. A total of 895 airplanes were licensed in North Dakota.

Cass, Grand Forks and Williams Counties received the largest checks with Cass registering 59 airplanes, Grand Forks County registering 58 airplanes, and Williams County 53.

The County apportionment of funds amounts to 75 per cent of each resident aircraft registration fee collected as provided in the 1947 Aeronautics Act. The County Treasurer in turn must pay the county share of fuunds to municipalities within the county owning and operating public airports. The funds are specifically earmarked for airport construction, maintenance or improvements.

Aircraft registration fees are collected by the Aeronautics Commission in lieu of personal property taxes. Aircraft registration fees are based on maximum gross weight and the year of manufacture.—N. D. Newsletter.

A PLACE AT BOEING FOR YOU

A letter from Don F. Renard of the Boeing Airplane Company employment center advises that the Boeing Company in Seattle has an immediate need for both skilled and untrained personnel In the area of skilled labor the greatest need is for Tool and Die Makers, Electronic Technicians for work on manned and pilotless aircraft and for aircraft and engine mechanics.

Unskilled labor is trained on the job for a variety of duties on the assembly line.

Mr. Renard stated that there was a continuing need of all types of engineers and that women with business training will find positions such as stenogrohpers and typists. Those with commercial art training who have taken high school mathematics and have the ability to read blueprints may be qualified to work as technical illustrator trainees, engineering aide trainees, or drafting.

Further information may be procured by writing to Mr. Don F. Renard, Boeing Employment Center, 1301 Second Avenue, Seattle, Washington.

INTERESTING ITEMS

More than 17,944,500 aircraft landings and takeoffs were handled by CAA towers at 180 airports last year.

Three hundred gallons of jet fuel are required to taxi a current jet bomber from warm-up ramps to the end of a runway for takeoff—generally a distance of about one and a half miles. That's 200 gallons per mile.

An airliner took off on a flight within the United States more than once every 11 seconds during 1955.

During the current fiscal year, the U. S. Government will pay out subsidies to overseas and territorial carriers in an amount which is less than 1/3 the amount American youngsters spend each year on comic books and a great deal less than the Government spent in 1954 on the price support of peanuts.

The ten and a half thousand civil aircraft in California alone nearly equal the combined total of all civil aircraft of twenty-one other nations who are members of the International Civil Aviation Organization.

You can fly Coast-to-Coast in the United States and never be more than eight minutes away from an airport.

There are nearly fifty-eight thousand active civil aircraft in the United States at present—an average of one airplane to every twenty-six hundred persons.

Passengers of U. S. domestic and international scheduled airlines numbered almost 42 million in 1955 a 19.1 per cent increase over 1954.

AUTOMATIC TETRAHEDRON

The Aeronautics Board of Oregon has developed a cam control tetrahedron which automatically points to the prevailing runway under wind conditions of less than six miles per hour. This ingenious traffic indicator does not require any manual control or electric power Sketches of the design may be obtained by writing to the office of the Montana Aeronautics Commission.

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

PURPOSE:—**"To foster aviation as an industry, as a mode of transportation for persons and property and as an arm of the national defense; to join with the Federal Government and other groups in research, development, and advancement of aviation; to develop uniform aviation laws and regulations; and to otherwise encourage co-operation and mutual aid among the several states."**

AVIATION SAFETY RELEASE NO. 403
USE OF FLARES

A flare must be at an altitude of above 400 feet from the ground to provide effective illumination at the instant of touchdown.

The average personal-type airplane with power off at landing approach speed descends approximately 750 feet per minute.

By arithmetic, it is seen that a 1-½ minute flare which is to burn out at 400 feet after an average rate of descent of 500 feet per minute must be fired at 1,150 feet above the ground (1-½x500=750+400=1,150). The smaller flare must be fired at 900 feet to burn out at this same altitude.

The average airplane descending at approach speed of 750 feet per minute will descend 1,125 feet in 1-½ minutes It will descend 750 feet before a 1-minute flare burns out.

The general procedures developed by the University of Illinois Institute of Aviation is briefly:

1. After an engine failure, select a possible general area for landing, using night vision and reference lights in any builtup areas in sight.

2. Fire one flare at above 2,000 feet to select a suitable field or area. The airplane should be dived to an altitude below that of the flare if the illumination is to be effective.

3. Establish a 180° or 360° overhead approach to the field selected, and fire the flare to be used for landing at approximately 1,200 feet above the upwind end of the field (1,000 feet in the case of 1-minute flares).

4. Dive the airplane immediotely about 200 feet to get below the flare and to hasten the descent.

5. Continue the planned approach at normal approach speed so os to touch down just as the flare drifts overhead at 400 feet and burns out.

The following specific recommendations for pilot preparation are from the report:

1. Preliminary practice should be performed in daylight with an observer to operate o stopwatch or other timer os the pilot calls "fire" each time he would fire a flare. The observer can announce, or a photograph timer can be set to ring, when the flare would burn out.

2. After the pottern and timing are established, two or three runs should be made at night. This can be done with the timer, using the normal lighting facilities at an airport.

3. Great benefit can be derived from making at least one landing on an unlighted airport by the actual use of a flare. Overage flares can be used for this purpose to minimise the expense.

4. The use of pistol-fired flares should be preceded by practice on the ground to ocquaint the pilot with the recoil to be anticipoted. An adequate window opening must be provided to allow him to extend his arm (usually the left), with which the pistol is to be fired, straight from the shoulder. He should also practice loading and reloading the pistol with one hand as he must do in flight.

Both the 1-minute pistol-type and the 1-½ minute type can be used to distinct advantage for actual night forced landings. The 1-½ minute flare has distinct odvontages in this situation as compared with the 1-minute pilot-operated flare.

The pilot's ability to make safe and efficient use of flares varies in proportion with his knowledge of and prior preporation in the use of the particular flare and airplane type to be used

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MOTOR GASOLINE VS. AVIATION GASOLINE

(Editor's note. The following article appeared in Technifacts, a publicotion of the Pure Oil Company. Primarily for reasons of safety, but also to settle a point of controversy which occured in the State of Ohio some time ago, this article is quoted here in its entirety. Our thonks to the Pure Oil Company.)

"Light aircraft have been accepted as an excellent means of transportation where scheduled or unscheduled trips of relatively short distances are necessary. These light aircraft require a fuel, generally speaking, of 80 octane number, designated as "80 Octane Aviation Gasoline". The reason for designating the fuel in this manner is that it is an entirely different type of gasoline than the motor gasoline used in vehicles operated on the ground. The difference between aviation gasoline and motor gasoline, which are of major significance are as follows.

Octane Number	Motor gasoline, generally speaking will have higher octane number than 80 Octane Aviation Gasoline.
Volatility	—Motor gasoline is less volatile with respect to 50% and 90% distilled points, and has on end point usually 50 to 75°F higher than Aviation gasoline.
Vapor Pressure	Motor gasoline has a higher vapor pressure than aviation gosoline. Aviotion gosoline calls for a vapor pressure of 7 lbs. per square inch maximum; motor gasoline varies with seasonal grade from 9.5 to 13.5 lbs. maximum.

We have received reports from the field indicating that there is on increased interest in the use of motor gasoline in place of the recommended aviation gasoline for light aircraft engines. This is probably due to the foct that aviation gasoline is more expensive than motor gasoline

What we wish to emphasize is that even though savings may be realized by using motor gosoline in light aircraft, the risk involved in using this type fuel in light aircraft is so great than any operator or owner should never permit its use. The risk we have reference to does not include octane number, which in current motor gasoline satisfy the requirement of light aircraft engine, but is the one involving vapor pressure and volatility. Because the vapor pressure of motor gasoline is substantially higher than that of aviation gasoline, there is a good possibility that vapor lock will occur when using this type fuel in aircraft. This could cause engine stalling, engine overheating and other engine malfunctioning with the net result that a serious accident might occur. Volatility of fuel is not as serious a factor as vapor pressure, but volatility must be proper so that fuel vaporization and distribution to the individual cylinders is proper." Ohio Aviation News.

LOCAL SERVICE AIRLINE DEVELOPMENT

Representatives of 18 Montana cities gathered in Great Falls on April 19th at the invitation of the Great Falls Chamber of Commerce to consider recommendations to the Civil Aeronautics Board for the development of a local airline service pattern for Montana. These 18 Montana cities have requested the Montona Aeronautics Commission to send Henry Loble, commission attorney, to Washington, D. C. for a pre-hearing conference scheduled for May 9th on the airline pattern for the northwest states.

The commission attorney will request the Civil Aeronautics Board to hold a hearing in Montana for consideration of the local service airline needs for our state.

Airline representatives attending the Great Falls meeting included Malcolm McKay, vice president of Northwest Airlines; C. A Myhre, president of Frontier Airlines; and Tom Croson vice president of West Coast Airlines.

Mr. McKay advised the group that Northwest Airlines had plans for the use of long range, high speed aircraft and that their airline service would eventually make only two stops in Montana at Billings and Great Falls. He stated that Northwest Airlines would give every assistance possible in the development of a local service airline pattern which would give satisfactory service between Montana communities.

Mr. Myhre stated that Frontier Airlines now serves five Montana communities and they would support the recommendations of Montana cities and would be interested in extending local service to any or all Montana communities which may have a revenue potential satisfactory to the Civil Aeronautics Board.

Mr. Croson advised the group that West Coast Airlines would be interested in serving the cities of western Montana and including Great Falls and Billings.

Both Frontier Airlines and West Coast Airlines hove placed orders for F-27 Fairchild local service airline equipment. This new airplane is pressurized and designed for economical operation and for existing oirports.

The plans for airline service between Montona communities are following the pattern developed by the Montana Aeronautics Commission and recommended to the Civil Aeronautics Board in 1954. (Wiley)

AIR FREIGHT

The Post Office Department initiated an experimental test of hauling first class mail by air between New York and Chicago at a rate of 18c per ton mile. The volume of this business exceeded all expectations and resulted in a profitable revenue for the airline and an economical saving for the Post Office Deportment.

The program has been expanded to include the hauling of first class mail between most major cities in the country and with this guaranteed revenue many airlines including the Flying Tigers and Slick now porticipate in hauling both first closs mail and air freight.

Several airlines have placed orders for long range high speed freight carrying aircraft which are being placed in service as fast as deliveries can be made. The economy of long haul air frieght is now competitive to ground carrier freight rotes and is limited in volume only by the availability of aircraft and the development of terminal facilities on airports. It is probable that air freight business will equal or exceed passenger business on all airlines within the next ten years and it is recommended that airport development plans include the design of runways to carry heavy aircraft and utility, and building sites for freight terminals. (Wiley)

The Miles City Airport now has an operating restaurant on the field. When you ore on a cross-country flight stop in and get a cup of coffee

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FOR SALE

Super Cub 105, 200 hrs. since major overhaul. Tires, glass, fabric finish excellent. Exceptionally clean. 115 Lycoming, 36 gal. gas, full electrical, navigation lights, landing lights, turn and bank, rate of climb, recording tack, visor, outside air temp., always hangared, never cracked, only $2,600. Equipped with Narco Omnihomer $2,800.00. Write Henry F. Meine, Route 1, Dillon, Montana. Telephone Dillon 095-J3.

FOR SALE

Aeronca 7 AC N82343 TT 1080:35, Cont-A-65-8 TT 1393:00. Has had major overhaul and 381:00 since top. McCauly 1B90CM Metal Prop. Licensed to 9-13-56. Price $600. Write Lyle Conner 514 8th or Elsie Childs 1304 Hauser, Helena, Montana.

FOR SALE

Aeronca 7 AC TT 3200.00. Cont. A65-8 TT 107:00. Lewis Prop. Excellent condition. Landing gear, tail wheel completely rebuilt, new bolts bushings, pins all control parts, new aileron links, tires, tubes, windshield. Refinished butyrate cub yellow. Airplane in excellent condition. Licensed to 8-11-56. Price $900. Write E. A. Dunlop, 1601 East Lyndale, Helena, Montana.

FOR SALE

1948 Stinson Station Wagon 165. 80 Hours since major. Price $3,000 with hydraulic skiis. $2,800 without skiis. Write Jim Brophy, Red Lodge, Montana.

FOR SALE

Two J3 Cubs, C85 sprayers, 1 combination. 150 hours since major. Two Sorenson spray kits. Write or call Choteau Flying Service, Choteau, Montana, telephone 9968.

AVIATION EVENTS

May 5—Annual Fly-In Breakfast and Big Apple Blossom Festival, Wenatchee, Washington.

May 13—Montana Flying Farmers and Ranchers Flight Clinic at Harlowton.

June 4th to 10th—Annual Aviation Week Wenatchee, Washington.

July 28th and 29th—Fly-In Week End, Port Townsend, Washington.

ITINERARY FOR CAA SAFETY AGENTS

Month of May, 1956

Big Timber 29
Billings—7,14,21,28
Bozeman—17
Dillon—16
Glasgow—9
Glendive—16
Great Falls—10
Havre 9
Helena 7, 14 21 28
Kalispell—23
Lewistown—24
Miles City—17
Missoula—24
Red Lodge—2

Month of June, 1956

Billings 4, 11, 18, 25
Bozeman—14
Cut Bank—6
Glasgow—13
Glendive—20
Great Falls 7
Helena 4, 11, 18, 25
Kalispell—27
Livingston—13
Miles City—21
Missoula—28
Wolf Point—14

Use Feeder Airline Service

Billings, Miles City, Glendive, Sidney, Wolf Point

"USE IT OR LOSE IT"

News Letter

P. O. Box 1698
Helena, Montana

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Butte, Montana

KEY TO AVIATION WEATHER REPORTS.

Location identifier	Special report 4	Sky and ceiling	Visibility weather and obstruction to vision	Sea level pressure	Temperature and dew point	Wind	Altimeter setting	Remarks
MKC	S4	150⦶M25⊕	4R-K	132	/58/56	↑7	/993/	RB05 ⊕V⦶

SKY AND CEILING

Sky cover symbols are in ascending order. Figures preceding symbols are heights in hundreds of feet above station.

Sky cover Symbols are:

○ - Clear: Less than 0.1 sky cover.
⦶ - Scattered: 0.1 to less than 0.6 sky cover.
⦷ - Broken: 0.6 to 0.9 sky cover.
⊕ - Overcast: More than 0.9 sky cover.
+ [illegible] — Thin

-X - Partial Obscuration: 0.1 to less than 1.0 sky hidden by precipitation or obstruction to vision (bases at surface).

X - Obscuration: 1.0 sky hidden by precipitation or obstruction to vision (bases at surface).

Letter preceding ceiling indicates how ceiling height was measured. Thus:

A - Aircraft E - Estimated P - Precipitation
B - Balloon M - Measured W - Indefinite
[V - Variable ceiling]

VISIBILITY

Reported in Statute Miles and Fractions
[V - Variable Visibility]

WEATHER SYMBOLS

A - Hail S - Snow
AP - Small Hail SG - Snow Grains
E - Sleet SP - Snow Pellets
EW - Sleet Showers SW - Snow Showers
IC - Ice Crystals T - Thunderstorm
L - Drizzle T+ - Heavy Thunderstorm
R - Rain ZL - Freezing Drizzle
RW - Rain Showers ZR - Freezing Rain

INTENSITIES are indicated thus:
-- Very Light (no sign) Moderate
— Light + Heavy

OBSTRUCTION TO VISION SYMBOLS

D - Dust H - Haze BD - Blowing Dust
F - Fog IF - Ice Fog BN - Blowing Sand
GF - Ground Fog K - Smoke BS - Blowing Snow

WIND

↓ N ← E ↑ S → W
↓↙ NNE ←↖ ESE ↑↗ SSW →↘ WNW
↙ NE ↖ SE ↗ SW ↘ NW
←↙ ENE ↑↖ SSE →↗ WSW ↓↘ NNW

Speed in Knots follows direction arrows. C indicates "Calm". + indicates "Gusty". Peak speed follows "gusty" sign.

ALTIMETER SETTING

The first figure of the actual altimeter setting is always omitted from the report.

DECODED REPORT

Kansas City. Special observation #4, 1500 feet scattered clouds, measured ceiling 2500 feet overcast, visibility 4 miles, light rain, smoke, sea level pressure 1013.2 millibars, temperature 58°, dew point 56°, wind south 7 knots, altimeter setting 29.93 inches, rain began 5 minutes past the hour, overcast occasionally broken.

-/-$ Indicates [illegible] change

PILOTS DON'T BE BASHFUL

When you call for weather information let us know you are a pilot and want flying weather information. (You'd be surprised how many non-flying advisories we issue.)

Use this CHECK LIST:

1. Destination
2. Route
3. Expected departure time
4. Approximate en route time

If you intend to fly VFR, it's helpful to us to know that too. Giving us the above listed information will help us to concentrate on YOUR weather problem and brief you in a minimum of time.

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

KEY TO AVIATION FORECASTS...

TERMINAL FORECASTS contain information for specific airports on ceiling, cloud heights, cloud amounts, visibility, weather condition and surface wind. They are written in a form similar to the AVIATION WEATHER REPORT.

CEILING: Identified by the letter "C"
CLOUD HEIGHTS: In hundreds of feet above the station
CLOUD LAYERS: Stated in order of height
VISIBILITY: In statute miles, omitted if over 8 miles
SURFACE WIND: In knots, omitted when less than 10

(A slant (/) means the height is more than 20,000 feet)

Examples of TERMINAL FORECASTS:

C15⊕6K {Ceiling 1500' overcast visibility 6 miles smoke
20⦶C70⊕ ↘30+ {Scattered clouds at 2000' ceiling 7000' overcast surface wind northwest 30 knots gusts
/⊕ {Overcast clouds with bases higher than 20 000'
O11/2GF {Clear, visibility one and one-half miles ground fog

AREA FORECASTS are 12-hour forecasts of cloud and weather conditions, cloud tops, fronts, icing and turbulence for an area the size of several states. A 12-hour OUTLOOK is added to the end of the forecasts. ALL HEIGHTS (cloud bases, tops, icing and turbulence) are above SEA LEVEL unless identified ("ABV GND")

WINDS ALOFT FORECASTS provide a 12-hour forecast of wind conditions at selected flight levels for more than 100 locations in the U. S. Temperatures aloft are included for selected stations.

Examples of WINDS ALOFT FORECASTS.

Without Temperature
6·2030 {6 000 MSL wind from 200° at 30 knots

With Temperature
10·2540/3 {10 000 MSL wind from 250 at 40 knots temperature +3 C

PILOTS: Please tell us about any hazardous en route weather that you think is unreported. Call by radio to nearest INSAC, or tell us when you land -- we'll pass the information on for use of other pilots.

If you have questions about the aviation weather service, see your nearest Weather Bureau airport station.

●

We suggest you file this for handy reference; with your flight charts, or log book, or post in airplane. (A coating of plastic spray will help preserve this sheet.)

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU • WASHINGTON 25, D. C.